Claims

What is claimed is:

1. A system for monitoring particle count in a chamber, comprising:

a system for sending light from the light source across the chamber;

a system for receiving the light; and

a system for determining particle count based upon interruptions in the light being received by the receiving system.

2. The system of claim 1 further including at least one optical waveguide to facilitate sending the light across the chamber.

3. The system of claim 1 further including at least one optical waveguide to facilitate receiving the light.

4. The system of claim 1 further including a beam splitter.

5. The system of claim 1 further including an in-situ laser scattering system.

6. The system of claim 1 further including a laser doppler anemometry system.

7. The system of claim 1, further including an interferometry system.

8. The system of claim 1 further including a spectrometry system.

9. The system of claim 1 further including an alarm system which sends an alarm if the contaminated particle count exceeds a predetermined threshold.

10. A system for monitoring the contaminated particle count in a chamber, comprising:

at least one laser disposed in the chamber, the at least one laser adapted to send a ray of light across the chamber;

at least one detector disposed in the chamber, the at least one detector adapted to receive the ray of light and provide a signal corresponding to the intensity of the ray of light;

a measuring system operably coupled to the at least one detector, the measuring system adapted to receive the signal corresponding to the intensity of the ray of light and convert the signal to digital data; and

a processor operatively coupled to the measuring system, the processor adapted to receive the digital data from the measuring system and analyze the digital data wherein the difference of the intensity of the ray of light from the at least one laser to when it is received by at least one detector is proportional to the particle count in the chamber.

11. The system of claim 10, wherein the measuring system applies in-situ laser scattering.

12. The system of claim 10, wherein the measuring system applies laser doppler anemometry.

13. The system of claim 11, wherein the measurement system applies interferometry.

14. The system of claim 10, wherein the measuring system applies spectrometry.

15. The system of claim 10, wherein the processor outputs the analyzed data to a display.

16. The system of claim 10, wherein the processor turns on an alarm if the contaminated particle count exceeds a predetermined level.

17. The system of claim 10, wherein the processor turns on an exhaust fan if the contaminated particle count exceeds a predetermined level, the exhaust fan communicating with the chamber to remove contaminant particles from the chamber.

18. The system of claim 17, wherein the exhaust fan is controlled by an exhaust controller.

19. The system of claim 10, further including at least one mirror disposed in the chamber, the at least one mirror adapted to reflect the ray of light received from the at least one light to the at least one detector.

20. The system of claim 10, wherein the at least one laser includes a first laser located at a first height and a second laser located at a second height and the at least one detector includes a first detector located at the first height and adapted to receive light from the first laser and a second detector at the second height adapted to receive light form the second laser.

21. The system of claim 10, wherein the chamber is a cup.

22. A system for controlling the contaminated particle count in an aerosol found in a chamber during a photoresist coating and/or development process of a semiconductor, the system comprising:

at least one laser disposed in the chamber, the at least one laser adapted to send a ray of light across the chamber;

at least one detector disposed in the chamber, the at least one detector adapted to receive the ray of light and provide a signal corresponding to the intensity of the ray of light;

a measuring system operably coupled to the at least one detector, the measuring system adapted to receive the signal corresponding to the intensity of the ray of light and convert the signal to digital data; and

a processor operatively coupled to the measuring system, the processor adapted to receive the digital data from the measuring system and analyze the digital data wherein the difference of the intensity of the ray of light from the at least one laser to when it is received by at least one detector is proportional to the particle count in the chamber;

an exhaust fan in communicative relationship with the chamber, the exhaust fan adapted to remove contaminated particles out of the chamber; and

a flow control valve controlling the exhausting level of the exhaust fan based on analyzed data received from the processor.

23. The system of claim 22, wherein the measuring system applies in-situ laser scattering.

24. The system of claim 22, wherein the measuring system applies laser doppler anemometry.

25. The system of claim 22, wherein the control valve is controlled by an exhaust controller.

26. The system of claim 22, further including at least one mirror disposed in the chamber, the at least one mirror adapted to reflect the ray of light received from the at least one light to the at least one detector.

27. The system of claim 22, wherein the at least one laser includes a first laser located at a first height and a second laser located at a second height and the at least one detector includes a first detector located at the first height and adapted to receive light from the first laser and a second detector at the second height adapted to receive light form the second laser.

28. The system of claim 22, wherein the chamber is a cup.

29. A system for monitoring the contaminated particle count in an aerosol found in a chamber during a photoresist coating and/or development process of a semiconductor, the system comprising:

means for transmitting a ray of light across the chamber;

means for detecting the intensity of the ray of light and providing a signal corresponding intensity of the ray of light;

means for converting the signal to digital data; and

means for determining the particle count in the chamber from the digital data based on the change of intensity of the ray of light due to contaminated particles in the chamber.

30. The system of claim 29, further including means for exhausting the contaminated particles from the chamber.

31. The system of claim 29, further including means for signaling an alarm when the particle count exceeds a predetermined level.

32. The system of claim 29, further including means for controlling the level of the particle count.

33. The system of claim 29, further including means for reflecting the ray of light across the chamber.

34. A method for monitoring the contaminated particle count in an aerosol found in a chamber during a photoresist coating and/or development process of a semiconductor, the method comprising the steps of:

transmitting a ray of light across the chamber;

detecting the intensity of the ray of light and providing a signal corresponding to the intensity of the ray of light;

converting the signal to digital data; and

determining the particle count in the chamber from the digital data based on the change of intensity of the ray of light due to contaminated particles in the chamber.

35. The method of claim 34, further including the step of exhausting the contaminated particles from the chamber if the particle count exceeds a predetermined level.

36. The method of claim 34, further including the step of signaling an alarm when the particle count exceeds a predetermined level.

37. The method of claim 34, further including step of continuously controlling the level of the particle count base on the measured particle count.

38. The method of claim 34, further including the step of reflecting the ray of light across the chamber after the step of transmitting the ray of light and before the step of detecting the intensity of the ray of light.